Nurses face numerous stressors on a daily basis within their clinical workplace that often result in clinically significant distress and impairments in well-being, eventually leading to burnout (Lim, Bogossian, & Ahern, 2010). These debilitating effects may affect nurses’ ability to care for their patients (Barnett, Baker, Elman, & Schoener, 2007). As such, fostering psychosocial resources, such as resilience, has been highlighted as being key to improving patient care and surviving compassion fatigue and burnout in nurses (Jackson, Firtko, & Edembough, 2007).

Mental or psychological resilience is the ability and capacity to cope successfully with significant change, adversity, or risk (Rutter, 1987) and to thrive in the face of adversity (Connor & Davidson, 2003). Nurses’ resilience can be strengthened through mentorship programs that develop and nurture professional relationships and encourage positivity, emotional insight, holistic balance, spirituality, and personal reflection (Jackson et al., 2007). Strengthening resilience also requires a multilevel approach that builds on the strengths and capabilities of the individuals, while maintaining sensitivity to culture and context (Ungar, 2008). However, a recent literature review found no formal training programs and thus no evidence suggesting that resilience can be strengthened in nurses (McCann et al., 2013).

Although undergraduate and postgraduate nursing education programs may already have begun to incorporate resilience training, there remains a population of nurses currently practicing in highly stressful settings who may potentially benefit from such programs. However, those nurses are often time constrained, with few opportunities to reflect on their practice and much less to attend training sessions specifically targeted at personal (and not professional) improvement (McAllister & McKinnon, 2009). Therefore, it was of interest to explore whether nursing continuing education (CE) training programs may have a secondary effect of improving resilience and reducing stress.
METHOD

As part of a health care quality improvement project to introduce routine stress screening in a national cancer center in Singapore, all nurses practicing in the medical–radiation–oncology units were invited to attend a voluntary CE training program in psychosocial care and stress management. The 2-hour standardized program sought to improve knowledge (theoretical and applied), attitudes, and practice behaviors (KAPb) of 180 nurses with various experience and training. The program was conducted in two segments—a formal didactic session, which provided information on tools for measuring emotional distress, clinical scenarios of patient presentations, and relaxation techniques such as progressive muscle relaxation and controlled breathing; and a small-group, role-playing session composed of six to 10 nurses who were provided with clinical scenarios for experiential learning, facilitated by psychologists and psychiatrists. The program outline and its efficacy have been described in detail elsewhere (Mahendran et al., 2014). Results revealed that the program improved applied knowledge and self-reported practice behaviors that were sustained over 12 weeks.

The current study sought to investigate whether changes in KAPb following such a CE training program for nurses would be associated with changes in their resilience and stress. It was hypothesized that after attending the CE program, improvements in KAPb (measured by the KAPb Scale; Mahendran et al., 2014) would be positively correlated with improvements in resilience (measured by the Resilience Scale; Wagnild, 2011) and reductions in stress (measured by the General Health Questionnaire; Goldberg & Williams, 1988).

A subset of data from 162 female nurses (77% RNs) practicing in the medical–oncology setting (65% in inpatient settings; 53% of participants had less than 4 years of experience) who had attended the aforementioned CE training program and completed both baseline (1 week pre-CE program) and follow-up measures (8 weeks post-CE program) was used for analysis. Change scores were calculated by subtracting the baseline from the follow-up scores of the measures of interest. All participants provided informed consent, and ethics approval was received from the Institutional Review Board at the National University of Singapore.

RESULTS AND DISCUSSION

As seen in the Table, findings from these exploratory analyses revealed that improvements in overall KAPb, specifically theoretical knowledge, applied knowledge, and practice behaviors, were positively correlated with improvements in resilience. Participants’ KAPbs were unrelated to stress, but improvements in resilience were correlated with reductions in stress. Although no follow-up qualitative interviews were conducted to examine the processes underlying these findings, it is interesting to speculate on possible reasons.

Learning about the prevalence and effects of psychological distress on cancer patients’ treatment outcomes and prognoses and the various ways in which nurses could play a part in alleviating this sequelae may have resulted in a greater sense of participants’ self-efficacy and community capability about managing such patients, which may have led to improve-

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PARTICIPANTS’ (N = 162) NONPARAMETRIC CORRELATION MATRIX BETWEEN CHANGE SCORES OF VARIABLES OF INTEREST</th>
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<tr>
<td>1. KAPb</td>
<td>.52***</td>
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<tr>
<td>2. Theoretical knowledge</td>
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<tr>
<td>3. Applied knowledge</td>
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Note. KAPb = knowledge (theoretical and applied), attitudes, and practice behaviors. *p ≤ .05; **p ≤ .01; ***p ≤ .001.
ments in resilience (Ungar, 2008). Thus, participants may have been more likely to interact and engage with patients on the causes of their stress and offer skills (e.g., deep breathing or progressive muscle relaxation) to alleviate stress symptoms, which may have also reinforced self-efficacy and improved resilience. In the interactions with patients and identifying the causes of stress, participants may also have experienced patients’ adversity by proxy. This may have triggered personal reflection via social comparisons and a broadened perspective on their own lives and coping with their stressors, which has been shown to improve resilience (Jackson et al., 2007).

Although speculative, the study findings provide preliminary evidence that nurse resilience can be strengthened. CE programs for nurses targeted at improving psychosocial care for patients may also have a secondary effect of improving nurses’ resilience, and, consequently, reduce their stress. However, more research is required to ascertain the veracity of these results in other settings and organizational and national cultures.

REFERENCES